THE CLAIMS:

1. A method of forming features in a carbon-based work piece, the method comprising:

depositing a mask layer on the work piece;

creating a pattern in the mask layer; and

etching the pattern into the work piece to a predetermined depth.

2. The method of claim 1, wherein the pattern in the mask layer is created by photolithography.

3. The method of claim 2, wherein the photolithography includes depositing a photoresist layer on the masked work piece and exposing the photoresist to ultra-violet light.

4. The method of claim 3, wherein the unexposed portion of the photoresist layer is dissolved, leaving photoresist in the desired pattern on the mask layer.

5. The method of claim 1, wherein the etching step comprises plasma etching the pattern into the work piece to a predetermined depth to form the complex shape.

6 The method of claim 1, wherein the etching step comprises reactive ion etching the desired pattern into the work piece to a predetermined depth.

7. The method of claim 1, wherein the etching step comprises subjecting the work piece to oxidation.

8. The method of claim 1, further comprising chemically dissolving that portion of the mask layer remaining after the etching.

9 The method of claim 1, wherein that portion of the mask layer remaining after the etching step is dissolved by melting.

10 A method of forming details in a Carbon-Carbon work piece, the method comprising:

depositing a mask layer on at least a portion of the work piece;

creating the desired pattern in the mask layer;

removing that portion of the mask layer forming the desired pattern; and

etching the desired pattern to form the complex shape in the work piece.

11. The method of claim 10, wherein the mask layer is formed of aluminum.

12. The method of claim 10, wherein the mask layer is formed of silicon.

13. The method of claim 10, wherein the mask layer is deposited on the work piece by physical evaporation.

14. The method of claim 13, wherein shutters are selectively open or shut to control evaporation of the mask layer onto the work piece.

15. The method of claim 13, wherein an electron gun is utilized to evaporate the mask layer onto the work piece.

16. The method of claim 10, wherein the mask layer is deposited onto the work piece by sputtering.

17. The method of claim 10, wherein the mask layer is deposited onto the work piece by chemical vapor deposition.

18. The method of claim 10, wherein the mask layer is deposited onto the work piece by electroplating.

19. The method of claim 10, wherein the mask layer is deposited onto the work piece by electroless plating.

20. An article comprising:

a carbon-containing work piece; and

a mask layer on the work piece;

the mask layer having an etched pattern extending through to the carbon-containing work piece.